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http://www.DefeatDiabetes.org

About Diabetes

Diabetes is an insidious condition afflicting 21 million Americans. And half of them don't yet know they have it! When you think on a global scale, and consider all of the "Third World" and "Emerging" countries (whose healthcare systems are poor to non-existent) the number of diabetics is staggering!

The latest statistical estimates indicate there are approximately 194 million people diagnosed with **diabetes** worldwide.

But, **with early detection diabetes is manageable**, allowing those afflicted to live long and fruitful lives. Although **no cure** for **diabetes** exists, **proper treatment can control the disease and prevent complications.**

Once identified as having **diabetes**, a person should immediately:

(1.) Consult with a diabetes specialist (Diabetologist or Endocrinologist).

(2.) Start on a supervised medical and nutritional therapy program.

(3.) Include an individualized physical fitness program into her/his lifestyle.

Constantly Reminding You of These Three Facts

All three are absolutely necessary for the proper management of **diabetes**. The three rings around the staff of the torch in the Defeat **Diabetes** Foundation logo stand as a constant reminder of these three facts.

If you would like to take our screening test to see if you may be at risk for **diabetes - Click Here to Take the Screening Test.**

Diabetes

There are 21 million Americans who are diabetic and almost half of them don't know it! The life expectancy of the diabetic is shortened by one third, however, the sooner **diabetes** is detected the sooner lifestyle changes can begin, increasing life expectancy to a large degree. This insidious disease is the third leading killer in this country - behind heart disease and cancer. The key to managing **diabetes** (one can only hope to "manage" **diabetes** as there is **no cure**), is Early Detection (with continuing qualified medical supervision) followed by sensible DIET and EXERCISE programs. But first, let us examine what is happening (or not happening), in your body when the diabetic condition exists.

This disease, generally speaking, is characterized by great thirst, increase of urine and being overweight. There can be a general weariness (fatigue), reduced sexual drive, weight loss, vision impairment, itching, neuropathy and numbness in the extremities. Also, there are a number of other complications resulting from a lowering of resistance.

Glucose and Diabetes

Glucose is a simple sugar which is your body's prime source of energy. The digestive process turns the **carbohydrates** of the meal you just ate into this glucose which is then distributed throughout your body via the bloodstream. Thus, "**blood sugar**". Some of the blood sugar is used by the brain which requires a constant supply of glucose. And there are other cells in your body which also need immediate energy. However, these only account for a portion of the blood sugar. The rest is stored in the liver and muscles as a starch called "**glycogen**", or in adipose tissue as "fat" to be used later. The glycogen will be turned back into glucose as your body's energy needs require it. The normal body maintains an even balance of sugar in the blood so as to satisfy the body's energy needs. Any disruption in this delicate balance creates a chemical imbalance: **HYPOGLYCEMIA** - too low blood sugar level; or **HYPERGLYCEMIA** - too high blood sugar level. **Insulin**, the **hormone** secreted by the Pancreas, is what maintains the proper levels of blood sugar. It is the vital component necessary for the smooth transition of glucose into the cells for energy; whether it is the glucose used immediately or the stored glycogen to be used later. It is a full time job for the **pancreas**. However, when the pancreas does not produce enough insulin to create a proper release of glycogen from the liver to the bloodstream the result is high blood sugar, or **DIABETES**.

Types of Diabetes

Type 1 diabetes, formerly called juvenile **diabetes**, is usually first diagnosed in children, teenagers, or young adults. In this form of **diabetes**, the beta cells of the pancreas **no** longer make insulin because the body's immune system has attacked and destroyed them.

Type 2 diabetes, formerly called adult-onset **diabetes**, is the most common form. People can develop it at any age, even during childhood. This form of **diabetes** usually begins with insulin resistance, a condition in which muscle, liver, and fat cells do not use insulin properly. At first, the pancreas keeps up with the added demand by producing more insulin. In time, however, it loses the ability to secrete enough insulin in response to meals.

Gestational diabetes develops in some women during the late stages of pregnancy. Although this form of **diabetes** usually goes away after the baby is born, a woman who has had it is more likely to develop type 2 **diabetes** later in life. Gestational **diabetes** is caused by the hormones of pregnancy or by a shortage of insulin.

A Note on the Treatment of Diabetes

Diabetes knowledge, treatment, and prevention strategies advance daily. Treatment is aimed at keeping **blood glucose** near normal levels at all times. Training in self-management is integral to the treatment of **diabetes**. Treatment must be individualized and must address medical, psychosocial, and lifestyle issues.

Keeping Your Body Healthy

- **Keep Your Eyes Healthy**
- **Keep Your Feet Healthy**
- **Keep Your Heart and Blood Vessels Healthy**
- **Keep your Teeth and Gums Healthy**

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Diabetes

What is Diabetes?

Diabetes mellitus, commonly referred to as **diabetes**, is a medical condition associated with abnormally high levels of glucose (or sugar) in the blood (hyperglycaemia).

- Glucose is a type of sugar found in certain foods such as honey and some, but not all, fruits. It is also the form of sugar that all sugary and starchy foods are converted to in the body after digestion. Glucose is used by the body to make energy.
- Normally, blood glucose levels are tightly controlled by insulin, a chemical signalling substance (hormone) that is produced by a gland near your stomach called the pancreas.
- Insulin lowers the blood glucose level because it stimulates the body to make use of glucose.
- When the amount of glucose in the blood increases, for example, after eating food, insulin is released from the pancreas to normalise the glucose level. However, in patients with **diabetes** mellitus, the elevated glucose levels cannot be normalised. This causes abnormally high levels of blood glucose, which ultimately leads to the presence of glucose in the urine (glucosuria).

How do you get Diabetes?

There are two main types of **diabetes** mellitus. These are known as type 1 and type 2.

- Type 1 **diabetes** mellitus used to be called insulin-dependent **diabetes** mellitus, or juvenile-onset **diabetes** mellitus, because it usually begins in childhood or adolescence.
- In type 1 **diabetes** mellitus, the pancreas releases **no** insulin at all because the body has destroyed the cells that produce it (islet cells). The patient therefore relies on treatment with insulin.
- Type 2 **diabetes** mellitus is the most common form of **diabetes**. It used to be called non-insulin dependent **diabetes** mellitus, or adult onset

diabetes because it usually begins in adulthood.

- In type 2 **diabetes**, patients can still produce insulin, but they do not produce enough and/or their bodies cannot use it properly.

Another form of **diabetes**, known as gestational **diabetes**, occurs in some women during pregnancy. It is a temporary condition caused by pregnancy and usually occurs in the later stages, once the baby has formed but is still growing.

How serious is Diabetes?

The early symptoms of untreated **diabetes** mellitus are related to the elevated blood glucose levels. Excess glucose in the blood ultimately results in high levels of glucose being present in the urine (glucosuria). This increases the urine output, which leads to dehydration and increased thirst. Other symptoms include extreme tiredness, weight loss, blurred vision, itchy skin and repeated minor infections such as thrush and boils.

People with type 1 **diabetes** must be treated with insulin in order to stay alive.

If uncontrolled for many years, **diabetes** mellitus can lead to more serious health problems:

- Blood vessel damage within the eye (retinopathy). This can lead to blindness.
- Kidney disease (nephropathy) or kidney failure.
- Nerve damage (neuropathy) especially of the hands and feet, causing tingling, numbness and weakness.
- Narrowing of the blood vessels due to fatty deposits (atherosclerosis). This increases the risk of heart attack, stroke and poor blood flow in the legs.

Uncontrolled gestational **diabetes** can result in a large baby and a difficult birth. It can also increase the risk of developing type 2 **diabetes** later in life.

How long does Diabetes last?

Diabetes Mellitus is a life-long, chronic condition.

- Type 1 **diabetes** usually begins in childhood or adolescence. The symptoms tend to occur suddenly after the onset of the disease and are usually more obvious than those of type 2.

- Type 2 **diabetes** usually begins in adulthood (mainly after 40 years of age). It develops gradually in most cases and may be present for several years before it is detected.

Gestational **diabetes** is a temporary condition that may occur during pregnancy and usually goes away after the baby is born.

How is Diabetes treated?

Treatment is aimed at controlling the elevated blood glucose without causing an abnormally low glucose level (hypoglycaemia). An important aspect of your treatment plan will involve eating a healthy diet (low fat, salt and sugar and high fibre). You should also monitor your blood glucose levels.

- Type 1 **diabetes** mellitus is treated with insulin, exercise, and a healthy diet.

- Type 2 **diabetes** mellitus is first treated with weight reduction, a healthy diet and regular exercise.

- In type 2 **diabetes**, if the above measures fail to control the elevated blood glucose, oral (by mouth) medicines are used to try to boost insulin production, improve the body's use of it, or reduce the speed at which glucose enters the blood. Treatment with insulin will be considered if these other medicines are insufficient.

- Gestational **diabetes** is usually controlled by a healthy diet and regular exercise. Some women may require treatment with insulin.

Treating high blood pressure and controlling the levels of fats (lipids) in the blood are also very important in patients with **diabetes** as they are at greater risk than the normal population of developing serious cardiovascular diseases.

- A group of medicines known as ACE (angiotensin converting enzyme) inhibitors are sometimes used to reduce the risk of developing cardiovascular complications in **diabetes** and can also reduce the risk or progression of kidney and eye diseases.

Although there is currently **no cure** for **diabetes** mellitus, it can be controlled successfully with an active treatment plan. The potential benefit of pancreas transplants and islet cell transplants in type 1 patients is being investigated.

Any medical information on this website is not intended as a substitute for informed medical advice and you should not take any action before consulting with a health care professional. Click here for more important information.

DIABETES MELLITUS

DEFINITION

Diabetes mellitus (pronounced DI-uh-BEE-teez MEH-luh-tuss) is a condition in which the body's cells are **no** longer able to utilize blood sugar. Blood sugar is the fuel that cells use to make energy. Symptoms of **diabetes** mellitus include excessive thirst and hunger, frequent urination, and tiredness.

DESCRIPTION

Diabetes mellitus is a chronic health disorder. Chronic means that the condition lasts for many years. **Diabetes** can cause serious health problems. These problems include kidney failure, heart disease, stroke (see stroke entry), and blindness. About fourteen million Americans have **diabetes**. As many as half of these people do not know they have the condition.

Diabetes Mellitus: Words to Know

Glucose:
A type of sugar that is present in the blood and in cells, used by cells to make energy.

Insulin:
A hormone (type of protein) produced by the pancreas that makes it possible for cells to use glucose in the production of energy.

Ketoacidosis:
A condition that results from the build-up of toxic chemicals known as ketones in the blood.

Pancreas:
A gland located behind the stomach that produces insulin.

The Energy Your Body Needs

Our bodies require a constant production of energy. We use that energy to walk, talk, think, and carry on many other activities. The energy comes from the food we eat.

Certain foods contain chemicals known as carbohydrates. When carbohydrates enter the body, they break down to form a simple sugar known as glucose. The glucose travels to cells throughout the body by way of the bloodstream.

To enter a cell, glucose may need the help of another chemical known as insulin. Insulin is produced in the pancreas. Insulin also travels through the bloodstream to all cells in the body. It acts like a key that opens cells so that glucose can enter.

In a healthy body, enough insulin is produced to make sure that all cells get the glucose they need. The cells can then produce enough energy to satisfy the body's needs.

In some cases, however, this system breaks down. One problem may be that the pancreas stops producing enough insulin. There is not enough insulin for all the cells that need it. Glucose cannot get into many of the body's cells. The cells cannot produce enough energy for the body's needs.

Another problem is that some cells may **no** longer recognize insulin. The pancreas may still produce insulin for all the body's cells, but some cells don't respond to it. Again, glucose can't get into the cells and energy is not produced to satisfy the body's needs.

Types of Diabetes Mellitus

Two types of **diabetes** mellitus are recognized. These two types differ in two major ways—the age at which they occur and their causes. Type I **diabetes** is also called juvenile **diabetes**. It usually begins during childhood or adolescence. In this form of **diabetes**, the pancreas produces little or **no** insulin. The condition can be treated by having a person take daily injections of insulin. For this reason, Type I **diabetes** is also called insulin-dependent **diabetes**. Type I **diabetes** affects about three people in one thousand in the United States.

Type II **diabetes** is sometimes called adult-onset **diabetes**. The name "adult-onset" comes from the fact that Type II **diabetes** usually does not appear until a person grows older. More than 90 percent of the diabetics in the United States are Type II diabetics. This form of the disorder is not caused by low levels of insulin. Instead, the body's cells do not recognize insulin in the bloodstream. They are not able to get the glucose they need to make energy.

People with Type II **diabetes** do not need to take insulin. Their body produces all the insulin it needs. The body just can't use it properly. As a result, Type II **diabetes** is sometimes called noninsulin-dependent **diabetes**. Type II **diabetes** is treated with diet, exercise, and drugs.

CAUSES

The causes of **diabetes** mellitus are unclear. Both heredity and environment may be involved. Studies have shown that certain genetic factors may be responsible for **diabetes**. Genes are chemical units found in all cells, that tell cells what functions they should perform. Genes are passed down from parents to children. If parents carry a gene for **diabetes**, they may pass that gene on to their children.

Some researchers believe that Type I **diabetes** may also be caused by a virus or some other disease-causing organism. They think the organism may attack the pancreas at an early age. The pancreas may be damaged and lose its ability to produce insulin.

Kaitlyn Bubb, age 7, watches her friend Ivan Kotunov, age 13, perform a blood sugar test. Both children have **diabetes**. (Reproduced by permission of
AP/Wide World Photos
)

A number of factors have been tied to Type II **diabetes**. These factors include:

- Obesity (being excessively overweight, see obesity entry)
- Having relatives with **diabetes** mellitus
- Belonging to certain high-risk populations, such as African Americans, Native Americans, Hispanics, or Native Hawaiians
- Having high blood pressure (see hypertension entry)
- Having an excess or deficiency of certain substances in the blood, such as cholesterol or triglycerides (a form of fat)

SYMPTOMS

The classic symptoms of **diabetes** include being overly tired and sick, having to urinate frequently, feeling very thirsty and hungry, and losing weight. The way these symptoms develop differs for Type I and Type II **diabetes**. In Type I **diabetes**, they usually show up slowly in children or adolescents over a period of a few days or weeks. In Type II **diabetes**, they develop even more slowly, over a period of years, in adults over the age of forty. Adults often do not realize they have **diabetes** mellitus. The condition may be discovered only during a routine physical examination for some other problem.

Type I **diabetes** is generally a more serious condition than Type II. The most dangerous effect of Type I **diabetes** is a condition known as ketoacidosis (pronounced KEE-toe-ASS-ih-doe-sus), which occurs when Type I **diabetes** is not controlled. In ketoacidosis, chemicals that are toxic (poisonous) to the body begin to collect in the blood. These chemicals can cause abdominal pain, vomiting, rapid breathing, extreme tiredness, and drowsiness. If this condition is not treated, a person may fall into a coma and die. The most characteristic symptom of ketoacidosis is sweet-smelling breath.

The symptoms of Type II **diabetes** usually develop more slowly and are less serious. In the worst circumstance, they

include heart disease, infections of the gums and urinary tract, blurred vision, numbness in the feet and legs, and slow-healing wounds.

DIAGNOSIS

A patient with the symptoms listed above may be suspected of having **diabetes**. The diagnosis can be confirmed very easily and quickly with a blood and/or urine test. The amount of glucose present in the blood or urine can be measured. If the level is unusually high, it is likely the person has **diabetes**.

The simplest test for **diabetes** uses paper strips that change color when dipped into urine. The color of the strip is compared to a chart that comes with the strips. The chart shows how much glucose is present in the urine.

Blood tests can also be used to test for glucose. These tests tend to be more accurate than urine tests. A sample of blood is taken from the patient's arm. The sample is then analyzed in a laboratory. The amount of glucose present is determined. That amount is compared with the amount present in a healthy person's blood. A high level of glucose suggests the presence of **diabetes**.

People with **diabetes** often test their own blood many times a day. They use home glucose test kits that contain a small needle and a chart. They use the needle to produce a single drop of blood (often from their fingertip). The drop is then placed on a spot on the chart that contains a chemical that reacts with glucose. The color produced on the spot can be compared to the chart. It shows the level of glucose in the blood.

TREATMENT

There is currently **no cure** for **diabetes**. However, the condition can be managed well enough to allow most people to live normal lives. Treatment of **diabetes** focuses on two goals. The first is to keep blood glucose within a normal range, and the second is to prevent complications from developing over time.

Lifestyle Changes for Treatment of Type II Diabetes

Obesity is one of the major causes of Type II **diabetes**. Therefore, controlling one's weight is an important step in controlling the disorder. Type II diabetics are advised to have a well-balanced, nutritious diet and to follow a program of moderate exercise.

The goal in diet planning is to limit one's intake of calories. The term calories is used to describe the energy content of foods. If one takes in too many calories, they are not used to produce energy. They are converted into fat, which is stored in the body. The number of calories a person should take in each day depends on a number of factors, such as age, weight, and level of activity. Many professional organizations have developed diet plans for people with Type II **diabetes**. These plans insure that people get all necessary nourishment. They also insure that people do not eat more calories than needed for daily activities.

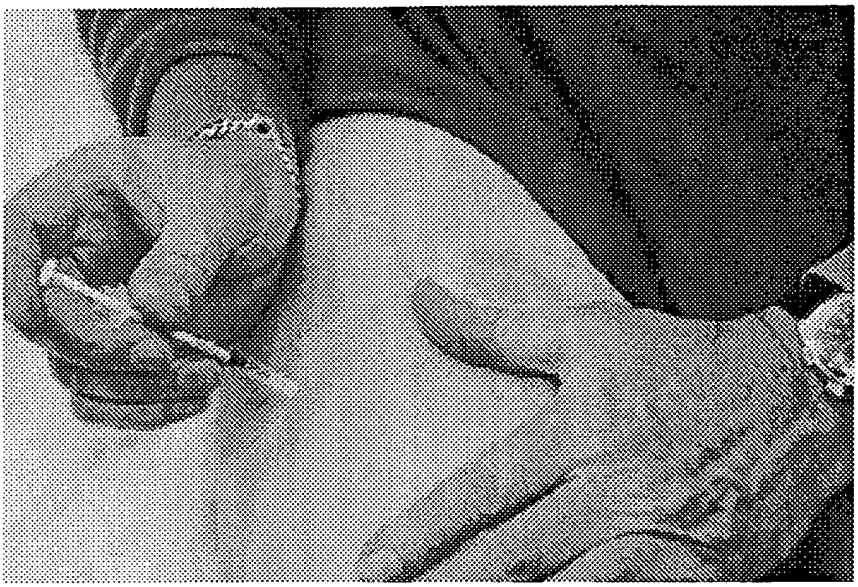
Oral Medications for Type II Diabetes

A number of drugs have been developed for the treatment of Type II **diabetes**. Most of these drugs belong to a class of compounds known as the sulfonylureas (pronounced SULL-fuh-nil-u-ree-uhz). They include tolbutamide (pronounced toll-BU-tuh-mide), tolazamide (pronounced toll-AZ-uhmide), acetohexamide (pronounced ASS-etto-HECK-suh-mide), and chlorpropamide (pronounced klor-PRO-puh-mide). These drugs stimulate the pancreas to make more insulin.

These drugs all have side effects. For example, they may cause a person to gain weight. But weight gain is often the original cause of the problem for Type II diabetics. So the drugs may not be very useful. They are still not as satisfactory as a well-planned diet and program of exercise. The drugs are also not effective against Type I **diabetes**.

Insulin: Treatment for Type I Diabetes

Type I **diabetes** can be treated with daily injections of insulin. The injections provide the insulin that the patient's pancreas doesn't make. The amount of insulin taken depends on many factors, including the patient's age, height, weight, food intake, and level of activity.



In most patients, Type I **diabetes** can be controlled with insulin injections. (© 1992 Science Photo Library . Reproduced by permission of Custom Medical Stock Photo .)

Insulin injections may also be needed by people with Type II **diabetes**. The injections are recommended when other methods of controlling the disorder do not work. The injections are given just under the skin anywhere on the body where there is loose skin.

Patients who require multiple insulin shots over the course of the day may be able to use an insulin pump. An insulin pump is a small device worn outside the body. Insulin flows from the pump through a tube connected to a needle. The needle is inserted into the abdomen. The pump is operated by a small battery. The pump can be programmed to inject a certain dose of insulin at given times of the day.

People who take insulin have to plan their injections carefully. Injections should be given to coincide with meals. If they are given at the wrong time, an insulin reaction may occur. An insulin reaction is the result of having too much insulin in the blood. A person may not have had enough to eat, or may have taken too much insulin. The patient may become cranky, confused, tired, sweaty, and shaky. Left untreated, he or she may become unconscious or have a seizure. Treatment for an insulin reaction is to give the patient food that has sugar in it. The sugar helps overcome the excess insulin in the blood.

Treatment of Last Resort: Surgery

In extreme cases, a pancreas transplant may be performed. In this procedure, the patient's own pancreas is removed and a healthy pancreas substituted. If the surgery is successful, the healthy pancreas begins producing insulin in the patient's body.

Surgery is often a treatment of last resort. Any surgical procedure has many risks involved. A doctor wants to be certain that those risks are worth the benefit the patient will gain by having a new pancreas.

Alternative Treatment

Diabetes can usually be treated successfully by the methods described above. A person should use caution in considering alternative treatments. If they are not successful, life-threatening complications can develop.

Some practitioners recommend a variety of herbal treatments for **diabetes**. Some of these herbs are thought to reduce glucose in the blood. They include fenugreek, bilberry, garlic, and onions. Cayenne pepper has been suggested to relieve pain in some forms of **diabetes** and ginkgo to prevent eye disorders related to **diabetes**.

Any therapy that lowers stress levels may be useful in treating **diabetes**. Such therapies include hypnosis, biofeedback, and meditation.

PROGNOSIS

In most patients, **diabetes** can be controlled by diet, exercise, and insulin injections. If the condition is not treated, however, some serious complications may result. For example, uncontrolled **diabetes** is the leading cause of blindness, kidney disease, and amputations of arms and legs. It also doubles a person's risk for heart disease and increases the risk of stroke. Eye problems also occur more commonly among diabetics than in the general population.

Some other long-term effects of **diabetes** mellitus include the following:

- Loss of sensitivity in certain nerves, especially in the legs and feet
- Foot ulcers
- Delayed healing of wounds
- Heart and kidney disease

PREVENTION

There is currently **no** way to prevent Type I **diabetes**. The risk for Type II **diabetes** can be reduced, however, by maintaining an ideal weight and exercising regularly.

FOR MORE INFORMATION

Books

American **Diabetes** Association. ***Diabetes** A to Z: What You Need to Know About **Diabetes** : Simply Put,* 3rd edition. Alexandria, VA: American **Diabetes** Association, 2000.

Edelwich, Jerry, Archie Brodsky, and Ronald A. Arky. ***Diabetes**: Caring for Your Emotions As Well As Your Health,* Revised edition. Reading, MA: Perseus Books, 1998.

Guthrie, Diana W. *The **Diabetes** Sourcebook: Today's Methods and Ways to Give Yourself the Best Care,* 3rd edition. Los Angeles: Lowell House, 1997.

Milcohovich, Sue K., and Barbara Dunn-Long. ***Diabetes** Mellitus: A Practical Handbook,* 7th Ed edition. Palo Alto, CA: Bull Pub. Co, 1999.

Organizations

American **Diabetes** Association. 1660 Duke Street, Alexandria, VA 22314. (703) 549–1500. **Diabetes** Information and Action Line: (800) **DIABETES**. http://www.**diabetes**.org.

American Dietetic Association. 430 North Michigan Ave., Chicago, IL 60611. (312) 822–0330. http://www.eatright.org.

Juvenile **Diabetes** Foundation International. 120 Wall Street, New York, NY 10005–4001. (212) 785–9595; (800) JDF–**CURE**.

National **Diabetes** Information Clearinghouse. 1 Information Way, Bethesda, MD 20892–3560. (301) 654–3327.

National Institutes of Health. National Institute of **Diabetes**, Digestive and Kidney Diseases. 900 Rockville Pike, Bethesda, MD 20892. (301) 496–3583. http://www.niddk.nih.gov.

Web sites

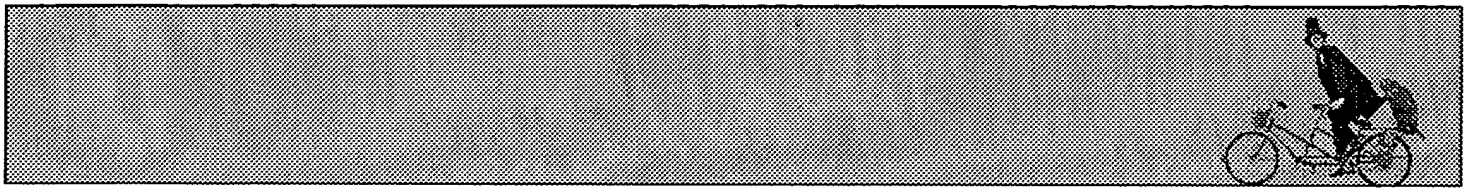
"Ask NOAH About: **Diabetes**." *NOAH: New York Online Access to Health.* [Online] http://www.noah.cuny.edu/**diabetes**.**diabetes**.html (accessed on October 24, 1999).

Centers for Disease Control and Prevention. ***Diabetes** Home Page.* [Online] http://www.cdc.gov/nccdphp/ddt/ddthome.htm (accessed on October 24, 1999).

Other

*Insulin-Dependent **Diabetes**.* National Institute of **Diabetes** and Digestive and Kidney Diseases. National Institute of Health, NIH Publication **No**. 94-2098.

*Noninsulin-Dependent **Diabetes**.* National Institute of **Diabetes** and Digestive and Kidney Diseases. National Institute of Health, NIH Publication **No**. 92-241.



Treatment overview

There is **no cure** for **diabetes**. But when a treatment plan results in blood glucose levels that are normal or nearly so, a person's risk of developing complications is much lower.

MULTIMEDIA

Health Tips from Dr. Healy:
- Video: How to avoid **diabetes** burnout

RELATED LINKS

Choose another disease or condition...

- See more online resources for **diabetes** information
- More on **Diabetes**

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There are certain things that all people with **diabetes** need to do to be healthy: have a meal plan and engage in regular physical activity (which can help the body use insulin so it can better convert glucose into energy for cells). Some people also need to take insulin or "oral agents," pills that help the body produce insulin and/or use insulin more effectively.

Many people with type 2 **diabetes** can manage the disease with meal planning and physical activity alone. If type 2 **diabetes** is diagnosed early, when the body is still producing and using insulin fairly effectively, changing eating habits and being more active may be sufficient to control blood glucose. On the other hand, many individuals have high blood glucose levels for years before they are diagnosed, and the disease may have progressed to the point where medication is also necessary. In both cases, the goal is to take whatever actions are needed to keep blood glucose levels as close to normal as possible in order to avoid complications.

It's vital for people with **diabetes** to monitor their blood glucose closely; regular checking will

help determine how well the meal plan, activity plan, and medications are working together to keep blood glucose levels in a normal range. See our section on home blood glucose monitoring.

This section has more information on:

- Meal planning
- Oral agents
- Insulin

Content last updated: 9/16/05

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Diabetes: Prevention is the Best Cure

By Robert Scheer

Article Word Count: 504 [View Summary] Comments (0)

There are 800,000 new **diabetes** cases diagnosed annually in the United States, and this number is expected to rise. **Diabetes** is a chronic disease that claims many lives each year. It is the number six killer in the USA today. While there is **no cure**, medical professionals are always looking for newer and more effective treatments. As with most chronic diseases, prevention is the best **cure**.

What Causes Diabetes?

Diabetes involves a person's metabolism. Basically, it is caused by the inability of one's pancreas to convert sugar in the food one eats into useful energy. This sugar then builds up in the bloodstream and internal organs, causing a variety of problems.

It is generally believed that sugar is bad for you. This is not exactly true. Actually, forms of sugar are found in nearly everything we eat, and our bodies

require these sugars for energy. However, the kinds and amounts of sugar people take in are important.

How Can I Avoid Getting Diabetes?

Recently, there has been a new concern among Americans to adopt healthier lifestyles and prevent **diabetes**. **Diabetes** is often linked with heart disease. Keeping your heart healthy will help reduce the risk of **diabetes**. Make sure you get plenty of exercise. It is recommended that adults get their hearts pumping for at least twenty minutes three times per week. This is a minimum. You can do something as simple as jogging around the neighborhood or working out on an exercise machine in front of the TV. Just make sure it gets your heart pumping.

Weight is a factor in **diabetes**. If you are overweight, you are more at risk. The single best reason to diet and lose weight is your health. It may help to motivate you to imagine that you are not only getting into better shape and looking good, but also possibly saving your own life.

What you eat is also a factor. Foods that are high in cholesterol are risky. So are many kinds of animal fats, and refined starches and sugars. One way to eat healthier is to make sure you eat food from each food group. Eat breakfast every day and watch your portion sizes. Even if you eat healthy foods, don't over indulge.

There are a few lifestyle factors as well. If you get too little or too much sleep every night, you may be putting yourself at risk. Sleep helps to regulate glucose levels in the body. Smoking puts you at a higher risk, but new studies show that coffee and moderate amounts of alcohol may reduce the risk of becoming diabetic.

Finally, Native Americans, African Americans, Hispanics and Pacific Islanders have a higher risk of developing **diabetes**. If you belong to one of these groups, it is especially important to eat a healthy diet and make sure you exercise regularly, in order to help prevent **diabetes.**

Robert Scheer is a freelance writer and consultant for the **Diabetes** Prevention and Control website.

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Breakthrough **cure** for **diabetes** isn't so; news headlines mislead type 2 diabetics

Posted Tuesday, February 01, 2005 by Mike Adams, Key concepts: **diabetes, cure for diabetes and diabetes vaccine.**

Printable article **Permalink: http://www.NewsTarget.com/004012.html**

Recent headlines proclaim, 'A **cure** for **diabetes** within ten years!' And as usual, the news has some diabetics thinking, 'Gee, I won't have to stop eating sugar, drinking soft drinks or avoiding ice cream now! The scientists are going to have a **cure** for **diabetes**.' And that is one way in which the mainstream media dangerously misleads the American public.

In reality, these headlines are talking about type 1 **diabetes**, the type that is increasingly rare in proportion to the number of people suffering from adult-onset type 2 **diabetes**. There is **no cure** for type 2 **diabetes**, because type 2 **diabetes** isn't technically a disease. It's just a metabolic side effect of a lifetime of consuming refined carbohydrates, added sugars, and avoiding physical exercise. So for those out there who are hoping for an instant **cure** for their type 2 **diabetes**, this isn't it.

So what breakthrough is this news talking about? It's about a vaccine that's being touted as a **cure** for type 1 **diabetes**. To

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understand the vaccine, however, you have to understand type 1 **diabetes** in the first place. Type 1 **diabetes** is technically an autoimmune disorder. It's the result of the body attacking and destroying its own beta cells in the pancreas -- the cells that normally produce insulin. It is the destruction of these beta cells that causes the diagnosis of type 1 **diabetes**, which is characterized by the body's inability to produce adequate insulin in response to rising blood sugar due following the dietary intake of carbohydrates or sugars.

Some doctors say **diabetes** is a disease that causes the destruction of insulin-producing cells in the pancreas. But that logic is completely backwards, even though it is the popular thinking about this so-called disease. The truth is that **first the body attacks the beta cells in the pancreas, then the person gets diagnosed as having this inability to produce insulin**, and that pattern of symptoms is given a label. That label is the word, '**diabetes**.'

So **diabetes** isn't the cause of the destruction of the beta cells in the pancreas. It is simply the name to these symptoms. The true cause of **diabetes** then, remains unexplored if you only pay attention to of the disease as offered by conventional medical doctors and researchers.

The next obvious question, then, is: what is the true cause of this autoimmune disorder? Why would t attack its own pancreas and destroy the beta cells that are responsible for keeping that person alive? functioning beta cells in the pancreas, most human beings would quickly die without supplemental ins

The answer is something that's almost never talked about in the mainstream press: the consumption One of the causes is cow's milk that confuses the body's immune system and makes it to think that th cells are in fact the enemy. The immune system then destroys those cells, resulting in a pattern of sy 'type 1 **diabetes**.'

There is a strong correlation between the consumption of milk and dairy products and the developmer **diabetes**. Certainly, there are other causes, but this is one of the more preventable causes of this dis mechanism at work has to do with the milk proteins (casein, among others) that human bodies have digesting. The presence of these proteins confuses the immune system, causing it to attack its own ce

Getting back to the **diabetes** vaccine, what the scientists are talking about is injecting children with a would prevent the immune system from attacking the beta cells in the pancreas. Once again, instead people to consume healthy products and avoid products that are only designed for other species (like conventional medicine is telling you to continue to eat and drink disease-promoting foods, and in the will come up with a vaccine and administer it with a shot to excuse you from the consequences of you choices.

As with most things in conventional medicine, this treatment is designed to take away the responsibili patient and put it in a drug. None of this is really talked about in the news about this so-called **cure** f **diabetes**. The press headlines simply call it a '**Cure** for **diabetes**' thereby misleading type 2 diabetics very limited information to type 1 diabetics.

We don't need cures for these diseases as much as we need to start preventing them, because type 1 **diabetes** are both preventable... almost universally so. And prevention is free, by the way. It doesn't expenditures for prescription drugs, it doesn't require regular visits to the doctor's office, and it doesn lifetime of insulin injections. But it does require that you stop poisoning your body with cow's milk, ref hydrogenated oils and other toxins found in the conventional food supply.

###

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Diabetes

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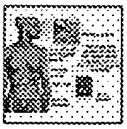
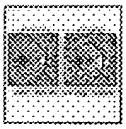
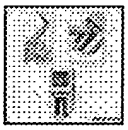
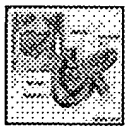
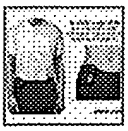

Endocrine glands

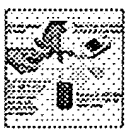

Diabetic retinopathy

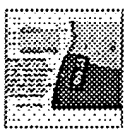

Islets of Langerhans


Blood test

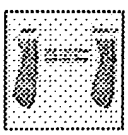

Pancreas


Insulin pump


Glucose test

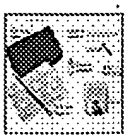

Insulin pump


Type I **diabetes**


Diabetic blood circulation in foot


Food and insulin release


Insulin production and **diabetes**



Monitor blood glucose - series

Definition *Return to top*

Diabetes is a life-long disease marked by high levels of sugar in the blood. It can be caused by too little insulin (a hormone produced by the pancreas to regulate blood sugar), resistance to insulin, or both.

Causes, incidence, and risk factors *Return to top*

To understand **diabetes**, it is important to first understand the normal process of food metabolism. Several things happen when food is digested:

- A sugar called glucose enters the bloodstream. Glucose is a source of fuel for the body.
- An organ called the pancreas makes insulin. The role of insulin is to move glucose from the bloodstream into muscle, fat, and liver cells, where it can be used as fuel.

People with **diabetes** have high blood glucose. This is because their pancreas does not make enough insulin or their muscle, fat, and liver cells do not respond to insulin normally, or both.

There are three major types of **diabetes**:

- Type 1 **diabetes** is usually diagnosed in childhood. The body makes little or **no** insulin, and daily injections of insulin are required to sustain life. Without proper daily management, medical emergencies can arise.
- Type 2 **diabetes** is far more common than type 1 and makes up 90% or more of all cases of **diabetes**. It usually occurs in adulthood. Here, the pancreas does not make enough insulin to keep blood glucose levels normal, often because the body does not respond well to the insulin. Many people with type 2 **diabetes** do not know they have it, although it is a serious condition. Type 2 **diabetes** is becoming more common due to the growing number of older Americans, increasing obesity, and failure to exercise.
- Gestational **diabetes** is high blood glucose that develops at any time during pregnancy in a person who does not have **diabetes**.

Diabetes affects about 18 million Americans. There are many risk factors for **diabetes**, including:

- A parent, brother, or sister with **diabetes**
- Obesity
- Age greater than 45 years
- Some ethnic groups (particularly African-Americans and Hispanic Americans)
- Gestational **diabetes** or delivering a baby weighing more than 9 pounds
- High blood pressure
- High blood levels of triglycerides (a type of fat molecule)
- High blood cholesterol level

The American **Diabetes** Association recommends that all adults be screened for **diabetes** at least every three years. A person at high risk should be screened more often.

Symptoms *Return to top*

High blood levels of glucose can cause several problems, including frequent urination, excessive thirst, hunger, fatigue, weight loss, and blurry vision. However, because type 2 **diabetes** develops slowly, some people with high blood sugar experience **no** symptoms at all.

Symptoms of type 1 **diabetes**:

- Increased thirst
- Increased urination
- Weight loss in spite of increased appetite
- Fatigue
- Nausea
- Vomiting

Symptoms of type 2 **diabetes**:

- Increased thirst
- Increased urination
- Increased appetite
- Fatigue
- Blurred vision
- Slow-healing infections
- Impotence in men

Signs and tests *Return to top*

A urine analysis may be used to look for glucose and ketones from the breakdown of fat. However, a urine test alone does not diagnose **diabetes**. The following blood glucose tests are used to diagnose **diabetes**:

- Fasting blood glucose level – **diabetes** is diagnosed if higher than 126 mg/dL on two occasions. Levels between 100 and 126 mg/dl are referred to as impaired fasting glucose or pre-**diabetes**. These levels are considered to be risk factors for type 2 **diabetes** and its complications.
- Random (non-fasting) blood glucose level – **diabetes** is suspected if higher than 200 mg/dL and accompanied by the classic symptoms of increased thirst, urination, and fatigue. (This test must be confirmed with a fasting blood glucose test.)
- Oral glucose tolerance test – **diabetes** is diagnosed if glucose level is higher than 200 mg/dL after 2 hours (This test is used more for type 2 **diabetes**.)

Patients with type 1 **diabetes** usually develop symptoms over a short period of time, and the condition is often diagnosed in an emergency setting. In addition to having high glucose levels, acutely ill type 1 diabetics have high levels of ketones.

Ketones are produced by the breakdown of fat and muscle, and they are toxic at high levels. Ketones in the blood cause a condition called "acidosis" (low blood pH). Urine testing detects both glucose and ketones in the urine. Blood glucose levels are also high.

Treatment *Return to top*

There is **no cure** for **diabetes**. The immediate goals are to stabilize your blood sugar and eliminate the symptoms of high blood sugar. The long-term goals of treatment are to prolong life, relieve symptoms, and prevent long-term complications such as heart disease and kidney failure.

LEARN THESE SKILLS

Basic **diabetes** management skills will help prevent the need for emergency care. These skills include:

- How to recognize and treat low blood sugar (hypoglycemia) and high blood sugar (hyperglycemia)
- What to eat and when
- How to take insulin or oral medication
- How to test and record blood glucose
- How to test urine for ketones (type 1 **diabetes** only)
- How to adjust insulin and/or food intake when changing exercise and eating habits
- How to handle sick days
- Where to buy **diabetes** supplies and how to store them

After you learn the basics of **diabetes** care, learn how the disease can cause long-term health problems and the best ways to prevent these problems: People with **diabetes** need to **review** and update their knowledge, because new research and improved ways to treat **diabetes** are constantly being developed.

WHAT TO EAT

You should work closely with your health care provider to learn how much fat, protein, and carbohydrates you need in your diet. Your specific meal plans need to be tailored to your food habits and preferences. People with type 1 **diabetes** should eat at about the same times each day and try to be consistent with the types of food they choose. This helps to prevent blood sugars from becoming extremely high or low. Type 2 diabetics should follow a well-balanced and low-fat diet.

A registered dietician can be very helpful in planning dietary needs.

Weight management is important to achieving control of **diabetes**. Some people with type 2 **diabetes** can stop medications after losing excess weight, although the **diabetes** is still present.

HOW TO TAKE INSULIN OR ORAL MEDICATION

Medications to treat **diabetes** include insulin and glucose-lowering pills, called oral hypoglycemic agents. The bodies of people with type 1 **diabetes** cannot make their own insulin, so daily insulin injections are required. The bodies of people with type 2 **diabetes** make insulin but cannot use it effectively.

Insulin is not available in oral form. It is delivered by injections that are generally required one to four times per day. Some people use an insulin pump, which is worn at all times and delivers a steady flow of insulin throughout the day.

Insulin preparations differ in how quickly they start to work and how long they remain active. Sometimes different types of insulin are mixed together in a single injection. The types of insulin to use, the doses required, and the number of daily injections are chosen by a health care professional trained to provide **diabetes** care.

People who need insulin are taught to give themselves injections by their health care providers or **diabetes** educators.

Unlike type 1 **diabetes**, type 2 **diabetes** may respond to treatment with exercise, diet, and/or oral medications. There are several oral hypoglycemic agents that lower blood glucose in type 2 **diabetes**. They fall into one of three groups:

- Medications that increase insulin production by the pancreas. These include Amaryl, Glucotrol, and Glucotrol XL, Micronase, Diabeta, Glynase, Prandin, and Starlix.
- Medications that increase sensitivity to insulin. These include Glucophage, Avandia, and Actos.
- Medications that delay absorption of glucose from the gut. These include Precose and Glyset.

Most type 2 diabetics will require more than one medication for good blood sugar control within three years of starting their first medication. Different groups of oral medications may be combined, or insulin and oral medications may be used together.

Some people with type 2 **diabetes** find they **no** longer need medication if they lose weight and increase activity, because when their ideal weight is reached, their own insulin and a careful diet can control their blood glucose levels.

Oral hypoglycemic agents are not known to be safe for use in pregnancy; women who have type 2 **diabetes** and take these medications may be switched to insulin during pregnancy and while breast-feeding.

Gestational **diabetes** is treated with diet and insulin.

SELF-TESTING

Self-monitoring of blood glucose is done by checking the glucose content of a drop of blood. Regular testing tells you how well diet, medication, and exercise are working together to control your **diabetes**.

The results of the test can be used to adjust meals, activity, or medications to keep blood sugar levels in an appropriate range. Testing provides valuable information for the health care provider and identifies high and low blood sugar levels before serious problems develop.

The American **Diabetes** Association recommends that premeal blood sugar levels fall in the range of 80 to 120 mg/dL and bedtime blood levels fall in the range of 100 to 140 mg/dL. Your doctor may adjust this depending on your circumstances.

You should also ask your doctor how often to check your hemoglobin A1c (HbA1c) level. The HbA1c is a measure of average blood glucose during the previous two to three months. It is a very helpful way to monitor a patient's overall response to **diabetes** treatment over time. A person without **diabetes** has an HbA1c around 5%. People with **diabetes** should try to keep it below 7%.

Ketone testing is another test that is used in type 1 **diabetes**. Ketones build up in the blood when there is not enough insulin in people with type 1 **diabetes**, eventually "spilling over" into the urine. The ketone test is done on a urine sample. High levels of blood ketones may result in a serious condition called ketoacidosis. Ketone testing is usually done at the following times:

- When the blood sugar is higher than 240 mg/dL
- During acute illness (for example, pneumonia, heart attack, or stroke)
- When nausea or vomiting occur
- During pregnancy

EXERCISE

Regular exercise is especially important for people with **diabetes**. It helps with blood sugar control, weight loss, and high blood pressure. People with **diabetes** who exercise are less likely to experience a heart attack or stroke than diabetics who do not exercise regularly. You should be evaluated by your physician before starting an exercise program.

Here are some exercise considerations:

- Choose an enjoyable physical activity that is appropriate for your current fitness level.
- Exercise every day, and at the same time of day, if possible.
- Monitor blood glucose levels before and after exercise.
- Carry food that contains a fast-acting carbohydrate in case you become hypoglycemic during or after exercise.
- Carry a **diabetes** identification card and a mobile phone or change for a payphone in case of emergency.
- Drink extra fluids that do not contain sugar before, during, and after exercise.

Changes in exercise intensity or duration may require changes in diet or medication dose to keep blood sugar levels from going too high or low.

FOOT CARE

People with **diabetes** are prone to foot problems because of the likelihood of damage to blood vessels and nerves and a decreased ability to fight infection. Problems with blood flow and damage to nerves may cause an injury to the foot to go unnoticed until infection develops. Death of skin and other tissue can occur.

If left untreated, the affected foot may need to be amputated. **Diabetes** is the most common condition leading to amputations.

To prevent injury to the feet, people with **diabetes** should adopt a daily routine of checking and caring for the feet as follows:

- Check your feet every day, and report sores or changes and signs of infection.
- Wash your feet every day with lukewarm water and mild soap, and dry them thoroughly.
- Soften dry skin with lotion or petroleum jelly.
- Protect feet with comfortable, well-fitting shoes.
- Exercise daily to promote good circulation.
- See a podiatrist for foot problems or to have corns or calluses removed.
- Remove shoes and socks during a visit to your health care provider and remind him or her to examine your feet.
- Stop smoking, which hinders blood flow to the feet.

Support Groups *Return to top*

For additional information, see **diabetes** resources.

Expectations (prognosis) *Return to top*

The risks of long-term complications from **diabetes** can be reduced.

The **Diabetes** Control and Complications Trial (DCCT) studied the effects of tight blood sugar control on complications in type 1 **diabetes**. Patients treated for tight blood glucose control had an average HbA1c of approximately 7%, while patients treated less aggressively had an average HbA1c of about 9%. At the end of the study, the tight blood glucose group had dramatically fewer cases of kidney disease, eye disease, and nervous system disease than the less-aggressively treated patients.

In the United Kingdom Prospective **Diabetes** Study (UKPDS), researchers followed nearly 4,000 people with type 2 **diabetes** for 10 years. The study monitored how tight control of blood glucose (HbA1c of 7% or less) and blood pressure (less than 144 over less than 82) could protect a person from the long-term complications of **diabetes**.

This study found dramatically lower rates of kidney, eye, and nervous system complications in patients with tight control of blood glucose. In addition, there was a significant drop in all **diabetes**-related deaths, including lower risks of heart attack and stroke. Tight control of blood pressure was also found to lower the risks of heart disease and stroke.

The results of the DCCT and the UKPDS dramatically demonstrate that good blood glucose and blood pressure control, many of the complications of **diabetes** can be prevented.

Complications *Return to top*

Emergency complications include diabetic hyperglycemic hyperosmolar coma.

Long-term complications include:

- Diabetic retinopathy
- Diabetic nephropathy
- Diabetic neuropathy
- Peripheral vascular disease
- Hyperlipidemia, hypertension, atherosclerosis, and coronary artery disease

Calling your health care provider *Return to top*

Go to the emergency room or call the local emergency number (such as 911) if symptoms of ketoacidosis occur:

- Increased thirst and urination
- Nausea
- Deep and rapid breathing
- Abdominal pain
- Sweet-smelling breath
- Loss of consciousness

Go to the emergency room or call the local emergency number if symptoms of extremely low blood sugar (hypoglycemic coma or severe insulin reaction) occur:

- Weakness
- Drowsiness
- Headache
- Confusion
- Dizziness
- Double vision
- Lack of coordination
- Convulsions or unconsciousness

Prevention *Return to top*

Maintaining an ideal body weight and an active lifestyle may prevent the onset of type 2 **diabetes**. Currently there is **no** way to prevent type 1 **diabetes**.

Update Date: 2/9/2005

Updated by: Kevin Pho, M.D., Attending, Internal Medicine, Boston VA Medical Center, Boston, MA. Review provided by VeriMed Healthcare Network.

PALM INTRANET

Day : Wednesday
Date: 9/6/2006
Time: 15:47:43

Inventor Information for 10/766118

Inventor Name	City	State/Country
FLUEHMANN, BEAT	ZUERICH	SWITZERLAND
HEIM, MANUEL	FREIBURG	GERMANY
HUNZIKER, WILLI	MAGDEN	SWITZERLAND
WEBER, PETER	MALSBURG-MARZELL	GERMANY

Appln Info | Contents | Petition Info | Atty/Agent Info | Continuity/Reexam | Foreign Data | Invento

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Attorney Docket # [ ] Search

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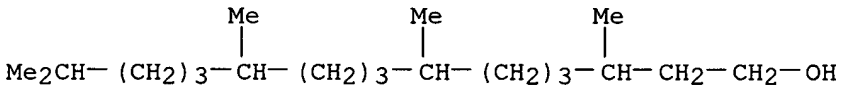
L2 ANSWER 196 OF 198 REGISTRY COPYRIGHT 2006 ACS on STN
RN 645-72-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1-Hexadecanol, 3,7,11,15-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3,7,11,15-Tetramethyl-1-hexadecanol
CN 3,7,11,15-Tetramethylhexadecanol
CN **Dihydrophytol**
CN Octahydrogeranylgeraniol
FS 3D CONCORD
DR 78695-21-3, 30220-52-1
MF C20 H42 O
CI COM
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMINFORMRX, CHEMLIST, MEDLINE, SPECINFO, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**
(**Enter CHEMLIST File for up-to-date regulatory information)

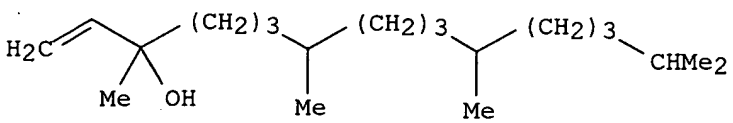


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

123 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
123 REFERENCES IN FILE CAPLUS (1907 TO DATE)
6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L2 ANSWER 197 OF 198 REGISTRY COPYRIGHT 2006 ACS on STN
RN 505-32-8 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1-Hexadecen-3-ol, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Isophytol**
CN NSC 93744
MF C20 H40 O
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, HSDB*, IFICDB, IFIPAT, IFIUDB, MRCK*, MSDS-OHS, NAPRALERT, PROMT, PS, SPECINFO, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Currently available stereo shown.



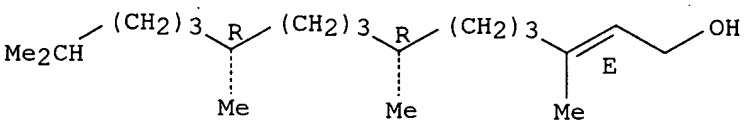
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

414 REFERENCES IN FILE CA (1907 TO DATE)

10 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
420 REFERENCES IN FILE CAPLUS (1907 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L2 ANSWER 198 OF 198 REGISTRY COPYRIGHT 2006 ACS on STN
RN 150-86-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN 2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, (2E,7R,11R)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(E)]]-
CN **Phytol (6CI, 8CI)**
OTHER NAMES:
CN **(7R,11R,2E)-Phytol**
CN **(E)-Phytol**
CN **(E,R,R)-Phytol**
CN 3,7,11,15-Tetramethylhexadec-2-en-1-ol
CN **trans-Phytol**
FS STEREOSEARCH
DR 5016-81-9
MF C20 H40 O
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DDFU, DETHERM*, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, NAPRALERT, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.
Double bond geometry as shown.



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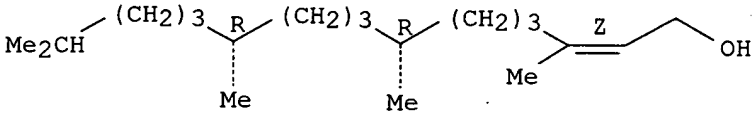
2017 REFERENCES IN FILE CA (1907 TO DATE)
64 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
2033 REFERENCES IN FILE CAPLUS (1907 TO DATE)
69 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=>

L2 ANSWER 192 OF 198 REGISTRY COPYRIGHT 2006 ACS on STN
RN 5492-30-8 REGISTRY
ED Entered STN: 16 Nov 1984
CN 2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, (2Z,7R,11R)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(Z)]]-
CN **Phytol, (Z)- (8CI)**
OTHER NAMES:
CN **(Z)-Phytol**
CN **cis-Phytol**
FS STEREOSEARCH
DR 13853-21-9
MF C20 H40 O
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMINFORMRX, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry.
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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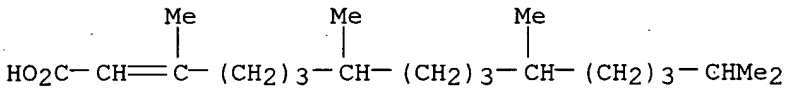
30 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L1 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2006 ACS on STN
RN 3653-46-1 REGISTRY
ED Entered STN: 16 Nov 1984
CN 2-Hexadecenoic acid, 3,7,11,15-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Δ2-Phytenic acid**
CN **Phytenic acid**
CN Phytenoic acid
FS 3D CONCORD
DR 13956-50-8, 30803-32-8
MF C20 H38 O2
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, MEDLINE, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
43 REFERENCES IN FILE CAPLUS (1907 TO DATE)
4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
NEWS	2		"Ask CAS" for self-help around the clock
NEWS	3	FEB 27	New STN AnaVist pricing effective March 1, 2006
NEWS	4	MAY 10	CA/CAplus enhanced with 1900-1906 U.S. patent records
NEWS	5	MAY 11	KOREAPAT updates resume
NEWS	6	MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS	7	MAY 30	IPC 8 Rolled-up Core codes added to CA/CAplus and USPATFULL/USPAT2
NEWS	8	MAY 30	The F-Term thesaurus is now available in CA/CAplus
NEWS	9	JUN 02	The first reclassification of IPC codes now complete in INPADOC
NEWS	10	JUN 26	TULSA/TULSA2 reloaded and enhanced with new search and and display fields
NEWS	11	JUN 28	Price changes in full-text patent databases EPFULL and PCTFULL
NEWS	12	JUl 11	CHEMSAFE reloaded and enhanced
NEWS	13	JUl 14	FSTA enhanced with Japanese patents
NEWS	14	JUl 19	Coverage of Research Disclosure reinstated in DWPI
NEWS	15	AUG 09	INSPEC enhanced with 1898-1968 archive
NEWS	16	AUG 28	ADISCTI Reloaded and Enhanced
NEWS	17	AUG 30	CA(SM)/CAplus(SM) Austrian patent law changes

NEWS EXPRESS JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.

NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8
NEWS X25	X.25 communication option no longer available

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FILE 'HOME' ENTERED AT 14:57:17 ON 06 SEP 2006

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'REGISTRY' ENTERED AT 14:57:29 ON 06 SEP 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 5 SEP 2006 HIGHEST RN 905905-44-4
DICTIONARY FILE UPDATES: 5 SEP 2006 HIGHEST RN 905905-44-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

```
=> s phytanic acid
            11 PHYTANIC
       7876902 ACID
          8987 ACIDS
       7883623 ACID
                (ACID OR ACIDS)
L1          11 PHYTANIC ACID
                (PHYTANIC(W)ACID)

=> d 1-11

L1   ANSWER 1 OF 11  REGISTRY  COPYRIGHT 2006 ACS on STN
RN   148054-49-3  REGISTRY
ED   Entered STN:  11 Jun 1993
CN   Hexadecanoic-2,3-t2 acid, 3,7,11,15-tetramethyl- (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   [2,3-3H]-Phytanic acid
MF   C20 H38 O2 T2
SR   CA
LC   STN Files:   CA, CAPLUS
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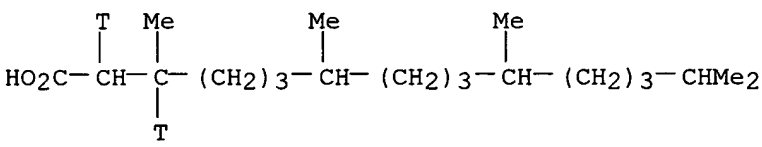

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                1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1   ANSWER 2 OF 11  REGISTRY  COPYRIGHT 2006 ACS on STN
RN   146622-45-9  REGISTRY
ED   Entered STN:  25 Mar 1993
CN   Coenzyme A, S-(3,7,11,15-tetramethylhexadecanoate) (9CI)  (CA INDEX NAME)
OTHER NAMES:
```
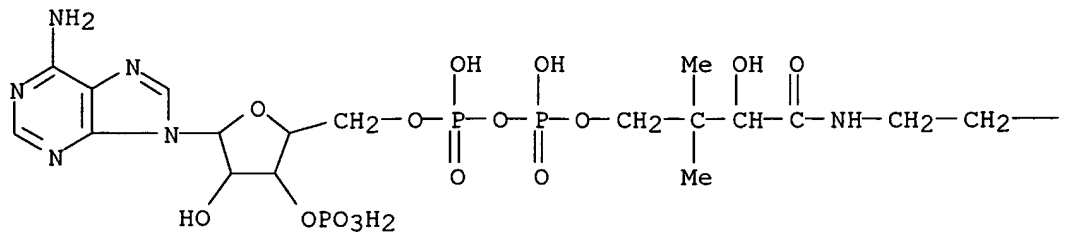
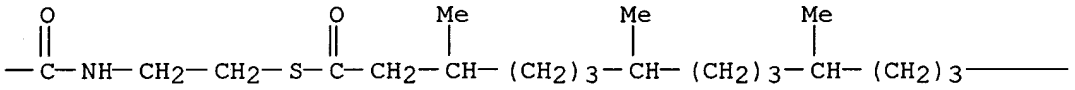

CN **Phytanic acid coenzyme A ester**
CN Phytanoyl-CoA
MF C41 H74 N7 O17 P3 S
SR CA
LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, CASREACT, TOXCENTER

PAGE 1-A



PAGE 1-B



PAGE 1-C

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

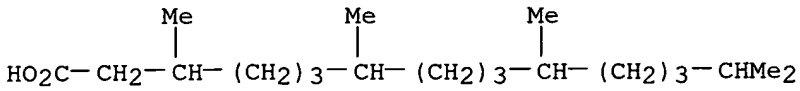
14 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 3 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 137701-14-5 REGISTRY
ED Entered STN: 06 Dec 1991
CN Decarboxylase, phytanate (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Phytanic acid decarboxylase**
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

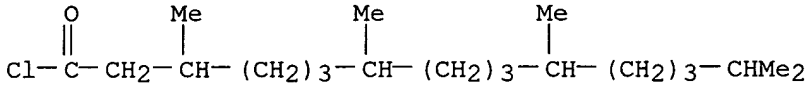
L1 ANSWER 4 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 64325-92-4 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, labeled with carbon-14 (9CI)

(CA INDEX NAME)
OTHER NAMES:
CN **Phytanic acid-U-14C**
FS 3D CONCORD
MF C20 H40 O2
LC STN Files: CA, CAPLUS
IL XC-14



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 5 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 32607-05-9 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoyl chloride, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3,7,11,15-Tetramethylhexadecanoic acid chloride
CN **Phytanic acid chloride**
FS 3D CONCORD
MF C20 H39 Cl O
LC STN Files: BEILSTEIN*, CA, CAPLUS, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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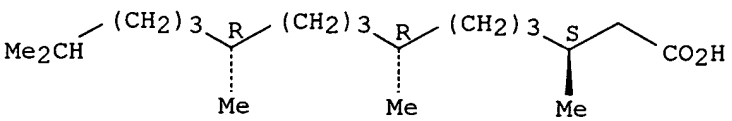
14 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 6 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 31653-05-1 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, (3S,7R,11R)- (8CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, [3S-(3R*,7S*,11S*)]-
OTHER NAMES:
CN **3L,7D,11D-Phytanic acid**
FS STEREOSEARCH
DR 18266-82-5
MF C20 H40 O2
LC STN Files: BEILSTEIN*, CA, CAPLUS, CHEMINFORMRX, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry. Rotation (-).



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11 REFERENCES IN FILE CA (1907 TO DATE)
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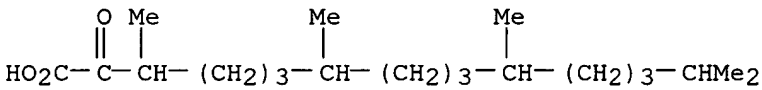
11 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 7 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 22008-47-5 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-2-oxo- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **α-Ketophytanic acid**
CN **2-Ketophytanic acid**
FS 3D CONCORD
DR 22008-56-6
MF C20 H38 O3
LC STN Files: CA, CAPLUS, CHEMCATS, MEDLINE, TOXCENTER

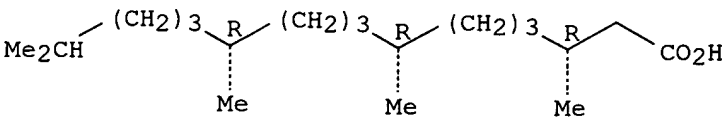


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 8 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 18654-64-3 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, (3R,7R,11R)- (8CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, [3R-(3R*,7R*,11R*)]-
OTHER NAMES:
CN 3,7,11,15-Tetramethylhexadecanoic acid ((3R,7R,11R)-)
CN **3D,7D,11D-Phytanic acid**
CN Hexadecanoic acid, 3,7,11,15-tetramethyl-, D,D,D-
CN **Phytanic acid, D,D,D-**
FS STEREOSEARCH
DR 18266-81-4
MF C20 H40 O2
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMINFORMRX, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry. Rotation (+).



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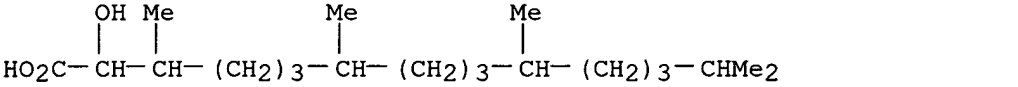
13 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 9 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 14721-68-7 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 2-hydroxy-3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **α-Hydroxyphytanic acid**
CN **2-Hydroxyphytanic acid**
FS 3D CONCORD
DR 14721-73-4
MF C20 H40 O3
LC STN Files: BIOSIS, CA, CAPLUS, CHEMCATS, MEDLINE, TOXCENTER, USPAT2, USPATFULL



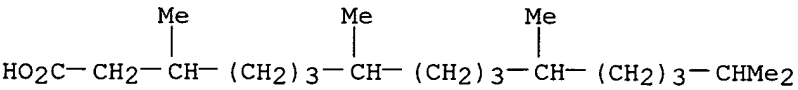
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

16 REFERENCES IN FILE CA (1907 TO DATE)
16 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L1 ANSWER 10 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 14721-66-5 REGISTRY
ED Entered STN: 16 Nov 1984
CN Hexadecanoic acid, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Phytanic acid (6CI)**
OTHER NAMES:
CN 3,7,11,15-Tetramethylhexadecanoic acid
CN NSC 108698
CN Phytanoic acid
FS 3D CONCORD
DR 18717-98-1, 2258-05-1
MF C20 H40 O2
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMINFORMRX, CSCHEM, EMBASE, MEDLINE, NAPRALERT, TOXCENTER, USPAT2, USPATFULL
(*File contains numerically searchable property data)

3653 - 467

phytol, phytene and



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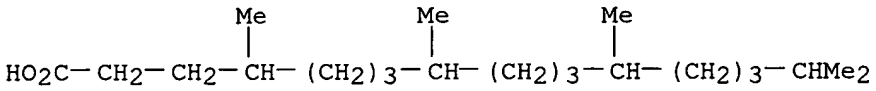
12 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
511 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L1 ANSWER 11 OF 11 REGISTRY COPYRIGHT 2006 ACS on STN
RN 10339-79-4 REGISTRY

ED Entered STN: 16 Nov 1984
CN Heptadecanoic acid, 4,8,12,16-tetramethyl- (7CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 4,8,12,16-Tetramethylheptadecanoic acid
CN **Homophytanic acid**
FS 3D CONCORD
MF C21 H42 O2
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, MEDLINE
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

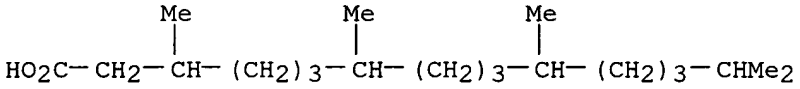
7 REFERENCES IN FILE CA (1907 TO DATE)
7 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L7 ANSWER 18 OF 21 USPATFULL on STN
ACCESSION NUMBER: 96:68043 USPATFULL
TITLE: α-Linolenic acid and eicosatetraynoic acid in the prevention and treatment of ventricular tachyarrhythmia
INVENTOR(S): Leaf, Alexander, Winchester, MA, United States
Kang, Jing X., Quincy, MA, United States
PATENT ASSIGNEE(S): The General Hospital Corporation, Boston, MA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5541225		19960730	<--
APPLICATION INFO.:	US 1994-320873		19941011	(8)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Mullis, Jeffrey
LEGAL REPRESENTATIVE: Fish & Richardson P.C.
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
LINE COUNT: 601
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Methods and compositions for the prevention of imminent ventricular tachyarrhythmia, particularly ventricular fibrillation, are disclosed. The composition comprises α-linolenic acid, eicosatetraynoic acid (ETYA), or a mixture of α-linolenic acid and ETYA. The composition may be administered by intravenous infusion, intracardial injection or both in a patient who presents symptoms of a condition, such as myocardial ischemia associated with myocardial infarction, which may immediately lead to ventricular fibrillation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
IT **14721-66-5**, Phytanic acid
(fatty acid effect on myocyte contraction rate)
RN 14721-66-5 USPATFULL
CN Hexadecanoic acid, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



L7 ANSWER 8 OF 21 BIOSIS COPYRIGHT (c) 2006 The Thomson Corporation on STN
ACCESSION NUMBER: 1993:503221 BIOSIS
DOCUMENT NUMBER: PREV199396127228
TITLE: Diet and Refsum's disease: The determination of **phytanic acid** and phytol in certain foods and the application of this knowledge to the choice of suitable convenience foods for patients with Refsum's disease.
AUTHOR(S): Brown, P. June; Mei, Guam; Gibberd, F. B.; Burston, D.; Mayne, P. D.; McClinchy, Jane E.; Sidey, Margaret
CORPORATE SOURCE: Dep. Neurology, Westminster Chelsea Hosp., 369 Fulham Road, London SW10 9NG, UK
SOURCE: Journal of Human Nutrition and Dietetics, (**1993**) Vol. 6, No. 4, pp. 295-305.
ISSN: 0952-3871.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 5 Nov 1993
Last Updated on STN: 6 Nov 1993

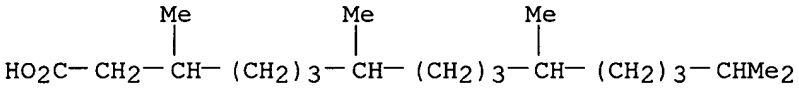
AB One hundred and fifty-one foods were analysed for **phytanic acid** and 57 foods for free phytol. Foods analysed included examples from all major food groups, beverages and confectionery. No significant amount of **phytanic acid** was found in any food of purely vegetable origin. The sources of **phytanic acid** in the UK diet were confirmed to be foods derived from ruminant animals and fish. They include beef, lamb and products containing the milk fats of cows, sheep and goats. All fish were found to contain **phytanic acid** roughly in proportion to their fat content. Domestic and commercial fat blends containing animal fats (chiefly hydrogenated fish oils) and baked goods made from these fats contained **phytanic acid**: pure vegetable fat blends and foods containing them did not. Free phytol was found in small amounts in a variety of foods but not in sufficient quantity to warrant the exclusion of any one item from the diet of patients with Refsum's disease.

L7 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1972:473445 CAPLUS
DOCUMENT NUMBER: 77:73445
TITLE: Plasma free fatty acids and obesity
AUTHOR(S): Badinand, A.; Losman, M.
CORPORATE SOURCE: Lab. Cent. Chim. Biol., Hop. E. Herriot, Lyons, Fr.
SOURCE: Bollettino Chimico Farmaceutico (**1972**), 111(3), 147-58
CODEN: BCFAAI; ISSN: 0006-6648
DOCUMENT TYPE: Journal
LANGUAGE: Italian

AB Anal. of plasma free fatty acids and adipose tissue fatty acids of 8 human controls, 18 obese subjects, and 5 diabetics by thin-layer and gas chromatog. showed a higher concentration of stearic and palmitic acid in the plasma than in adipose tissue, particularly in obese subjects. In contrast, concentration of oleic acid is higher in adipose tissue. Its concentration is lowest in some obese subjects. The relatively high concentration of **phytanic acid** in plasma in comparison to adipose tissue indicate that its origin is not endogenous.

IT **14721-66-5**
RL: BIOL (Biological study)
(of blood plasma, in obesity, **diabetes** in relation to)

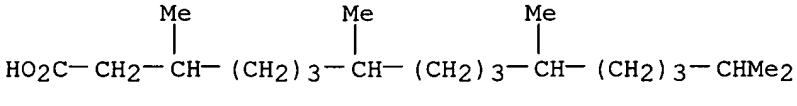
RN 14721-66-5 CAPLUS
CN Hexadecanoic acid, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



L7 ANSWER 3 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1979:82540 CAPLUS
DOCUMENT NUMBER: 90:82540
TITLE: Effect of α-tocopherol incorporation on **glucose** permeability and phase transition of lecithin liposomes
AUTHOR(S): Fukuzawa, Kenji; Ikeno, Hirohiko; Tokumura, Akira; Tsukatani, Hiroaki
CORPORATE SOURCE: Fac. Pharm. Sci., Univ. Tokushima, Tokushima, Japan
SOURCE: Chemistry and Physics of Lipids (**1979**), 23(1), 13-21
CODEN: CPLIA4; ISSN: 0009-3084
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Liposomes were prepared from dipalmitoyllecithin, dimyristoyllecithin, dioleoyllecithin, egg lecithin, and soybean lecithin, and the effect of incorporation of various quantities of α-tocopherol or its analogs on permeability of the liposomes to **glucose** were studied at various temps. (4-40°). An increase in the quantity of α-tocopherol incorporated into dipalmitoyllecithin and dimyristoyllecithin liposomes lowered the transition temperature for marked release of **glucose** and also decreased the maximum rate of temperature-dependent permeability. α-Tocopherol also had similar but less marked effects on the permeability of dioleoyllecithin and egg lecithin liposomes, but little effect on those of soybean lecithin, which has a higher degree of unsatn. In dipalmitoyllecithin liposomes, phytol showed a similar effect on permeability to that of α-tocopherol, but **phytanic acid** caused a different pattern of temperature-dependent permeability. With analogs of α-tocopherol, the regulatory effect on permeability decreased with shortening and disappearance of the isoprenoid side chain. The significance of these observations is discussed in relation to the physiol. functions of tocopherols in natural membranes.

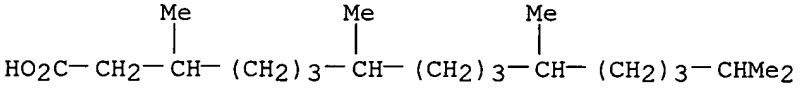
IT **14721-66-5**
RL: BIOL (Biological study)
(lecithin liposome response to)
RN 14721-66-5 CAPLUS
CN Hexadecanoic acid, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



L7 ANSWER 2 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1994:695544 CAPLUS
DOCUMENT NUMBER: 121:295544
TITLE: Archaebacterial lipid models: formation of stable vesicles from single isoprenoid chain-amphiphiles
AUTHOR(S): Yamauchi, Kiyoshi; Yoshida, Yoichi; Moriya, Tomoaki; Togawa, Katsuya; Kinoshita, Masayoshi
CORPORATE SOURCE: Department of Bioapplied Chemistry, Osaka City University, Sumiyoshi-ku, Osaka, 558, Japan
SOURCE: Biochimica et Biophysica Acta, Biomembranes (**1994**), 1193(1), 41-7
CODEN: BBBMBS; ISSN: 0005-2736
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Surfactants, PhyN+(Me)3 (OH-/Br-), PhyPO4H- (H+/Na+), PhySO-4 (H+/Na+) and Phy(CO-2) (H+/Na+), were prepared; Phy is a (3RS,7R,11R)-3,7,11,15-tetramethylhexadecyl group; **phytanic acid** or its sodium salt is expressed by Phy(CO-2) (H+/Na+). Equimol. mixts. of the cationic surfactant and the anionic ones in aqueous media, upon sonication, gave rise to stable suspensions of multilamellar vesicles (MLVs). Unlike the mol. assemblies from cationic and anionic pairs of straight chain-surfactants, the MLVs could trap ionic and nonionic compds. such as 5(6)-carboxyfluorescein and **glucose** with the captured volume of 0.6-1.6 l/mol in water. The vesicles were tolerant to about 25 mM aqueous NaCl. The packing mode of the surfactants in the membranes was discussed in conjunction with the thickness (about 60 Å) and the zeta-potential which was as large as 30-45 mV in water at 20°C.

IT **14721-66-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 14721-66-5 CAPLUS
CN Hexadecanoic acid, 3,7,11,15-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



L7 ANSWER 1 OF 21 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:700534 CAPLUS
DOCUMENT NUMBER: 132:20370
TITLE: The human PICD gene encodes a cytoplasmic and peroxisomal NADP+-dependent isocitrate dehydrogenase
AUTHOR(S): Geisbrecht, Brian V.; Gould, Stephen J.
CORPORATE SOURCE: Department of Biological Chemistry, The Johns Hopkins University School of Medicine, Baltimore, MD, 21205, USA
SOURCE: Journal of Biological Chemistry (**1999**), 274(43), 30527-30533
CODEN: JBCHA3; ISSN: 0021-9258
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Human PICD was identified by homol. probing the data base of expressed sequence tags with the protein sequence of Saccharomyces cerevisiae Idp3p, a peroxisomal NADP+-dependent isocitrate dehydrogenase. The human PICD cDNA contains a 1242-base pair open reading frame, and its deduced protein sequence is 59% identical to yeast Idp3p. Expression of PICD partially rescued the fatty acid growth defect of the yeast idp3 deletion mutant suggesting that PICD is functionally homologous to Idp3p. Kinetic studies on bacterially expressed PICD demonstrated that this enzyme catalyzed the oxidative decarboxylation of isocitrate to 2-oxoglutarate with a specific activity of 22.5 units/mg and that PICD displayed KM values of 76 μM for isocitrate and 112 μM for NADP+. In subcellular fractionation expts., we found PICD in both peroxisomes and cytoplasm of human and rat liver cells, with approx. 27% of total PICD protein associated with peroxisomes. The presence of PICD in mammalian peroxisomes suggests roles in the regeneration of NADPH for intraperoxisomal redns., such as the conversion of 2,4-dienoyl-CoAs to 3-enoyl-CoAs, as well as in peroxisomal reactions that consume 2-oxoglutarate, namely the α-hydroxylation of **phytanic acid**. As for cytoplasmic PICD, the phenotypes of patients with **glucose**-6-phosphate dehydrogenase deficiency (Luzzatto, L., and Mehta, A. (1995)) suggest that PICD serves a significant role in cytoplasmic NADPH production, particularly under conditions that do not favor the use of the hexose monophosphate shunt.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L2          11 PHYTANIC

=> file caplus medline biosis embase uspatful
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
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FULL ESTIMATED COST                                      36.50      36.71

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               ACID

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